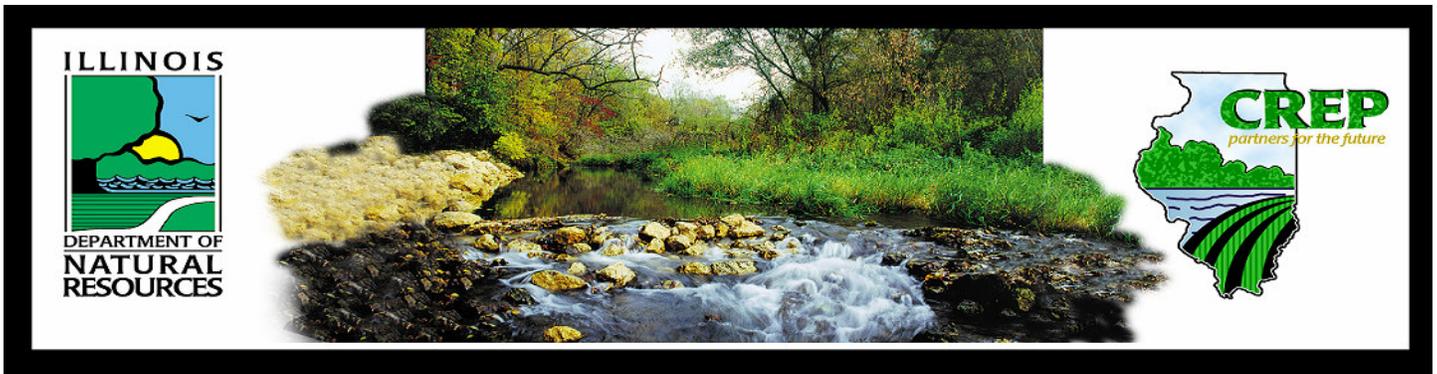


Illinois Conservation Reserve Enhancement Program 2005 Annual Report



A Partnership Between The USDA and the State of Illinois

Illinois Conservation Reserve Enhancement Program
(CREP)

Reporting Period: October 1, 2004 through September 30, 2005

The Illinois Conservation Reserve Enhancement Program (CREP) is a federal-state program that was created by a Memorandum of Agreement (MOA) between the U.S. Department of Agriculture, the Commodity Credit Corporation, and the State of Illinois in March 1998. Enrollments into this program began on May 1, 1998.

Since the beginning, the program has been extremely well received by the landowners in the targeted area. The MOA was re-authorized by all the parties on December 18, 2002 increasing the eligible acreage for enrollment to 232,000 acres.

CREP is being implemented through a federal-state-local partnership in the eligible area. The Agencies that are implementing the program are USDA - Farm Service Agency (FSA), USDA - Natural Resource Conservation Service (NRCS), the Illinois Department of Agriculture (IDOA), the Illinois Environmental Protection Agency (IEPA), the Illinois Department of Natural Resources (IDNR), and the County Soil and Water Conservation Districts (SWCDs) along with the Association of Illinois Soil and Water Conservation Districts (AISWCD) in the eligible area. Other agencies and organizations provide guidance and assistance for the program through the CREP Advisory committee, which is a subcommittee of the State Technical Committee.

ENROLLMENT SUMMARY:

For the reporting period of October 1, 2004 through September 30, 2005, the Federal

and State CREP Programs in Illinois were closed. Total Federal enrollment figures from the inception of the program May 1,

1998 through September 30, 2005 are as follows:

Number of contracts	-	5,401
Average acres/contract	-	20
Total acres contracted	-	109,760
Average rental rate/acre	-	\$159.51

Total State enrollments for the same period are as follows:

Number of Contracts	-	1197
Average acres/contract	-	60.32
Total acres enrolled	-	72,197.04
Average cost/acre	-	\$696.63

TECHNICAL ASSISTANCE AND PROGRAM STAFF:

Technical assistance in this program is made up of three types:

1. Assistance to the landowners during the enrollment process in determining eligibility, options, and selecting approved practices;
2. Assistance to landowners in implementing the approved CREP practice once the property is enrolled in the program; and
3. Assistance to the SWCD and landowners in the state requirements for execution of the state easement documents.

The Farm Service Agency, Natural Resource Conservation Service, Department of Natural Resources, and the County Soil and Water Conservation Districts provide primary technical assistance.

NON-FEDERAL CREP PROGRAM EXPENDITURES:

For this reporting period, the State obligated \$ 644,999.34 for CREP expenditures, State cost-share expenses, monitoring costs,

SWCD administrative fees and other associated enrollment and easement costs. In addition, the IDNR has provided another \$202,532.13 from its operational dollars to

provide for CREP Administrative Expenses, bringing the total State dollars directly expended for CREP enrollments to \$847,531.47.

State CREP Expenses
October 1, 2004 through September 30, 2005

State Bonus Payment for State Option	\$ 267,720.73
State Cost-Share Payments	(\$ 21,033.19)
Soil and Water Conservation District (SWCD) Administrative Fees	(\$ 17,250.78)
DNR Administrative Expenses - Contract and Data Management, Technical Assistance, Reports, Training	\$ 202,532.13
Additional Admin. Fees – Legal, Survey, filing costs	\$ 239,630.05
Monitoring	\$ 175,932.53
TOTAL	\$ 847,531.47

The federal CREP Program was not open for enrollment during this reporting period. The Memorandum of Agreement (MOA) for the Illinois CREP, as amended on December 18, 2002, details the formula to determine the overall costs of the program and to determine if the State has fulfilled its obligation to provide 20% of the total program costs. To determine the overall costs of CREP, the following costs are to be used: the total land retirement costs, which will include the CRP payments made by the Commodity Credit Corporation and the easement payments or the bonus payments

made by Illinois; the total reimbursement for conservation practices paid by the CCC and Illinois; the total costs of the monitoring program; and the aggregate costs of technical assistance incurred by Illinois for implementing contracts and easements, and a reasonable estimate of the cost incurred by the State to develop conservation plans. Since the CRP contract payments will be annual payments, an 8 percent per annum discount rate (per the MOA) is normally used to compare the CRP Payments with the State Bonus payment. However, there were no enrollments this year.

Total Federal and State Expenditures
October 1, 2004 through September 30, 2005

CRP Payments (Before Discount)	\$ 0	CRP Payment (Discounted 8%)	\$ 0
Federal Cost-Share	\$ 0	Federal Cost-Share	\$ 0
State Payments for CREP Enrollments	\$ 847,531	State Payments for CREP Enrollments	\$ 847,531
Total Program Costs	\$ 847,531	Total Program Costs	\$ 847,531

The total Federal and State costs of the CREP from October 1, 2004 through September 30, 2005 was \$847,531. The State's share of costs for the reporting period was \$847,531. Using the 8% per annum discount rate per the MOA, the Federal costs to be used for comparison to the state expenditures are \$0.00.

Per the December 18, 2002 Agreement, The State must contribute 20% from the Program inception in May 1998. Total Program discounted costs for this period are \$227,937,571. The State contributed \$50,388,833, or 22.11% of the total program costs after using the discount rate. The State has met the requirement for incurring 20% of the total Program costs.

PROGRAM ACTIVITIES AND ACCOMPLISHMENTS

Since the beginning of the CREP program on May 1, 1998 through the end of the current reporting period (September 30, 2005), CREP has restored and/or protected 109,760 acres of land either in existing native vegetation or in a previous CRP sign-up (See Map 1).

Of the 44,426.01 Federal acres enrolled in the State option, 7.95% selected the 15-year extension, 5.25% selected the 35-year extension, and 86.8% selected the permanent easement option. In Illinois, 40.5% of the 109,760 acres enrolling in

the Federal CREP Program also enrolled in the State enhanced option.

The CREP program is restoring and protecting large stretches of floodplain corridors both on the main stem of the Illinois River and along the major tributaries. It is helping landowners, who have only been able to produce crops in the area once or twice in the last decade, to retire these lands from agricultural production.

OTHER PROGRAMS AND PARTNERSHIPS

There are other state, federal and organizational programs that are contributing to the accomplishment of the goals of the Illinois CREP. The following highlights a few of the programs that contributed to achieving the goals the State has set for the Illinois River Basin. Any state or non-federal dollars that have been expended in these programs have not been included in the previous section that describe and list the direct state expenditures for CREP match.

STATE SUPPORTING AGENCIES

ILLINOIS DEPARTMENT OF NATURAL RESOURCES - C2000

The Conservation 2000 (C2000) Ecosystems Program currently has 20 Ecosystems Partnerships in counties that comprise of the Illinois River watershed, which consist of Big Rivers, Chicago Wilderness, DuPage River Coalition, Fox River, Headwaters, Heart of the Sangamon, Illinois River Bluffs, Kankakee River, Lake Calumet, LaMoine River, Lower Des Plaines, Lower Sangamon Valley, Mackinaw River, North Branch of the Chicago River, Prairie Parklands, Spoon River, Thorn Creek, Upper Des Plaines, Upper Salt Creek, and Vermillion Watershed Task Force. Since 1996, these partnerships have been awarded approximately \$15,000,000 for projects providing a variety of conservation practices.

Through the Ecosystems Program 40 projects in FY 05 were funded. These projects restored a total of 4,127 acres. Projects consisted of 266 acres of wetland, 1,333 acres of prairie, 77 acres of riparian, and 2,451 acres of forest being restored. C2000 funds also helped in educating 425 teachers, 16,417 students, and numerous landowners and local officials on the importance of biodiversity in the Illinois River watershed.

ILLINOIS DEPARTMENT OF AGRICULTURE

The Illinois Department of Agriculture administers numerous soil and water conservation programs that produce environmental benefits in the Illinois River Watershed. During the reporting period of 7/1/03 to 9/1/05 the Conservation 2000 Program (C-2000), administered by IDOA, has funded \$2.2 million worth of upland soil and water conservation practices in the 39 counties that have significant land in the Illinois River Watershed. Administered by the Department and County Soil and Water Conservation Districts (SWCDs), this program provides up to 60% of the cost of constructing conservation practices that reduce soil erosion and protect water quality.

Eligible conservation practices include terraces, grassed waterways, water and sediment control basins, grade stabilization structures and nutrient management planning. Approximately 1330 individual conservation projects were completed in the Illinois River Watershed, bringing soil loss to tolerable levels on over 20,894 acres of land. This translates into over 113,914 fewer tons of soil loss each year, or the equivalent of more than 5,000 semi truckloads of soil.

In FY 2004, the State of Illinois, through the Department of Agriculture, provided over \$3.3 million to 51 county SWCD offices in the Illinois River Watershed. These funds were used to provide financial support for SWCD offices, programs, and employees' salaries. Employees, in turn, provided technical and educational assistance to both urban and rural residents of the Illinois River Watershed. Their efforts are instrumental in delivering programs that reduce soil erosion and sedimentation and protect water quality.

In an effort to stabilize and restore severely eroding streambanks that would otherwise contribute sediment to the Illinois River and its tributaries, the Department of Agriculture, with assistance from SWCDs, is administering the Streambank Stabilization and Restoration Program (SSRP). The SSRP, funded under C-2000, provides funds to construct low-cost techniques to stabilize eroding streambanks. In FY 2004, 40 individual streambank stabilization projects totaling \$386,681 were constructed in 19 counties within the Illinois River Watershed. In all, over 24,746 linear feet of streambank, or more than 4.6 miles, have been stabilized to protect adjacent water bodies during the fiscal year.

Another environmentally oriented C-2000 Program administered by the Department of Agriculture is the Sustainable Agriculture Grant Program. Grants are made available to agencies, institutions, and individuals for conducting research, demonstration, or education programs or projects related to profitable and environmentally safe agriculture. In FY 2004, over \$347,000 was awarded to 17 grant recipients with programs or projects in the Illinois River Watershed in such areas as alternative crops, nitrogen rate studies, riparian management, integrated pest management, and residue management.

In the spring of 2006, the Department, in cooperation with SWCDs, will be conducting the tenth Transect Survey to assess the status of the adoption of conservation practices on a county and watershed basis. The survey conducted biennially, provides data that can be used by SWCDs, the Department and other agencies/organizations to identify trends and develop plans for targeting financial and technical resources to further reduce soil loss and to enhance water quality.

The most recent Survey, which was conducted in 2004, showed that SWCD staff assessed more than 19,000 fields while driving county routes to conduct the survey within the Illinois River Basin. The data shows sheet and rill erosion has been reduced to an average of about 2.2 tons per acre and about 91 percent of the fields surveyed are at or below the Tolerable Soil Loss to maintain productivity.

The gains realized in reducing soil loss from sheet erosion in the basin are largely due to the increase in farmers' use of conservation tillage. Tillage systems like mulch-till or no-till are considered forms of conservation tillage because they leave more than 30 percent of the previous crop's residue on the soils surface after planting which protects the soil from erosion. The survey shows nearly half (48%) of the fields surveyed in the Illinois River Basin were farmed using conservation tillage methods. The data also documents the continuation of a trend which shows about 72 percent of soybean fields are farmed using conservation tillage.

Although significant gains have been made in the reduction of sheet and rill erosion, the survey shows an increase in erosion caused by water leaving fields in a concentrated flow, which is known as ephemeral erosion. The 2004 survey indicated that 27 percent of the fields surveyed were in need of a conservation practice to control this type of erosion that can cause gullies in fields.

The agricultural community has and will continue to employ environmental-friendly practices that will conserve and protect natural resources in the Illinois River Watershed for the long term.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

One of the key missions of Illinois EPA is to monitor and protect the water resources of Illinois; these resources are relied upon for drinking water, fishing, transportation and recreational use and other environmental and economic benefits. One of the most dramatic improvements in water quality has taken place on the Illinois River.

Illinois EPA has eight Ambient Water Quality Monitoring Sites on the main channel of the Illinois River. Water chemistry is collected at these sites nine times per year. There are also approximately 250 Intensive Basin Survey Sites in the Illinois River watershed. These sites are monitored "intensively" once every five years. The monitoring includes water chemistry, macroinvertebrates, fish, habitat, sediment and at some sites fish tissue contaminants are collected. This information is cooperatively collected with the Illinois Dept. of Natural Resources, a partnership that began many years ago and continues to be strengthened annually.

The monitoring shows that the Illinois River mainstream water quality has improved significantly over the last 30 years since the passage of the Federal Clean Water Act (1972). Early improvements were due primarily to point source controls, such as additional treatment requirements and limits on discharges from wastewater treatment plants. The majority of water quality improvements over the last ten years have been from the implementation of nonpoint source management programs that reduce urban and agricultural runoff, programs such as CREP.

Illinois EPA believes that CREP has played a significant role in the improvement of the water quality in the Illinois River through the reduction of nonpoint source pollution. Seventy-three percent of the stream miles in the

Illinois River Basin are currently rated as "good," compared with 62 percent statewide and 98 percent of the lakes in the Illinois River Basin are rated "good" or "fair" compared with 97 percent statewide.

In 2005, Illinois EPA continued to participate on the State CREP Advisory Committee and continued to provide financial assistance to local soil and water conservation district staff so that they could assist landowners enroll in CREP. To date, more than \$880,000 of 319 grant funds have been put towards implementation of the CREP program.

The benefits derived through this financial support is not only efficiency in the sign-up process to increase CREP enrollment, but it also allows the existing SWCD and NRCS staff to continue to implement the other conservation programs so desperately needed to improve water quality in the Illinois River watershed. Some of those Illinois EPA programs include:

Section 319: Since 1990, the IEPA has implemented nearly 200 Clean Water Act Section 319 projects within the Illinois River Watershed. The Agency receives these federal funds from USEPA to identify and administer projects to prevent nonpoint source pollution. These projects include watershed management planning; best management practices implementation and outreach efforts. Illinois EPA has dedicated over \$36 million towards these projects to help improve the health of the Illinois River, its tributaries and ultimately the Mississippi River and Gulf of Mexico. Hundreds of conservation practices have been installed in the Illinois River watershed by dozens of our partners through the Section 319 program. Traditional practices such as terraces and waterways are dotting the landscape along with porous pavement parking lots, green roofs and miles of rural and urban stabilized streambank.

Since 1990, the 319 NPS program, through on the ground implementation can show load reduction decreases of: 193,884 lbs of nitrogen, 1,483,611 pounds of phosphorus, 763,257 pounds of total suspended solids, and 64,394 TONS of sediment per year, each and every year since the Best Management Practices were implemented as a result of 319 grant projects

between IEPA and our local partners, in both the private and government sectors.

Pilot Construction Site Erosion Control Program: Illinois EPA has began a program subcontracting with several soil and water conservation districts, the majority of them in the Illinois River Basin. Those partners include the DeWitt, Macon, McHenry and Winnebago County Soil and Water Conservation District Offices. District staff complete on-site NPDES Construction Stormwater Permit inspections and provide technical assistance in implementing best management practices to minimize runoff to nearby water bodies. This program is a natural fit for properly developing acreage that does not qualify for CREP.

Other Illinois EPA programs that complement CREP include:

Total Maximum Daily Load (TMDL): USEPA has approved 33 completed TMDL evaluations and Illinois EPA is currently developing another 39 TMDLs in the Illinois River Basin. TMDLs are a tool that we use to restore impaired

watersheds so that their waters will meet Water Quality Standards and Full Use Support for those uses that the water bodies are designated. A TMDL looks at the identified pollutants and develops, through water quality sampling and modeling, the amount or load reductions needed for the water body to meet its designated uses.

Conservation 2000: A total of 25 lakes in the Illinois River watershed have been improved by intensive monitoring and/or implementation projects, and more than \$5 million dollars of local, state and some federal monies have been used.

In conclusion, the Illinois River is a valuable resource that we are working hard to protect and restore. Illinois EPA will continue long-term monitoring of the river and its watershed and will continue to pursue funds to help implement CREP and other water quality restoration and protection projects and to work with citizen groups and local government and industry to continue the progress we have made.

FEDERAL PARTNER NEWS

NATURAL RESOURCES CONSERVATION SERVICE **News Release December 19, 2005**

If you own land in the Cedar Creek Watershed and have a problem with stream bank erosion, then this is your lucky day! A small sub-watershed within the Spoon River Watershed has been selected as a demonstration site for stream bank stabilization solutions. Landowners in and along the Cedar Creek tributaries can apply for special EQIP contracts for cost-share funds that specifically address damaged stream banks. Cost-share assistance ranges from 70–100%. Interested landowners in Fulton, Knox, Warren and a small part of McDonough Counties can apply for this special EQIP project at county NRCS offices beginning December 20, 2005. EQIP applications for assistance in stabilizing stream banks will also be

accepted from any producer in the larger Spoon River Watershed as well. Funds NOT used to restore the Cedar Creek tributaries will provide cost-share money to the best ranked applications from the entire Spoon River Watershed.

Stream bank erosion along the Spoon River--and most rivers and watercourses throughout Illinois--is a serious natural resource problem and a problem that plagues many private landowners. After all, soil and moving water collide along a stream bank, and erosion is usually the end result. Stream bank stabilization techniques can be installed that reduce this erosion and keep soil where it belongs.

“We’ve selected tributaries of Cedar Creek, known to locals as “Indian Creek,” “Little Negro Creek,” “Slug Run,” and “Picayune Creek” as a concentrated area where we can demonstrate the real power of low-cost stream bank stabilization measures that

work on typical Illinois streams,” explains Ivan Dozier, Assistant State Conservationist with NRCS.

The types of stream bank solutions considered for this demonstration project include “peaked stone” toe protection that runs along the length of the stream, stream barbs and bendway weirs, and small riffle structures. All projects may also include re-shaping of the bank and installation of protective vegetation.

“We’re providing this assistance through the EQIP program,” Dozier explains. This is a cooperative project of the NRCS, the Soil and Water Conservation Districts, the Spoon River Ecosystem Partnership, Illinois Department of Natural Resources, Illinois Department of Agriculture, and the Illinois Environmental Protection Agency.

“Because the area falls within the Illinois River Watershed and we have other state agencies involved, there’s an extra incentive for landowners who either already have a permanent CREP easement on the property they’re considering or landowners who are entering a new CREP contract,” adds Dozier.

Applicants will not be required to implement a complete resource management plan for the entire tract of land where the stream bank stabilization improvements would be installed. Applications will be taken starting December 20th. These special EQIP applications will only be competing with other applications within the Spoon River. Landowners with an existing permanent CREP easement can modify that easement and have eligible stream bank stabilization costs covered at a 100% level. Those within Cedar Creek Watershed who are willing to sign a new CREP contract can receive a 90% cost-share rate. Interested landowners in the area should contact their local county NRCS office to get additional information and to begin signing up for their EQIP contract.

NON-GOVERNMENTAL PARTICIPANTS

UNIVERSITY OF ILLINOIS - EXTENSION

The University of Illinois Extension provides educational programs and research-based information that help adults and youth to learn about land and water quality issues in the Illinois River Watershed.

The Illinois Conservation Reserve Enhancement Program (CREP) website www.ilcrep.org is maintained by the University of Illinois Extension. The University of Illinois Extension also continues to serve on the CREP Advisory Committee and provide input into the program

SUCCESS STORY

SIGNUP BEGINS FOR FARM LANDOWNERS TO ENROLL IN THE ILLINOIS CONSERVATION RESERVE ENHANCEMENT PROGRAM

(IDNR Press Release November 4, 2005)

SPRINGFIELD - For the first time since 2001, there will be a two-week signup for the Illinois Conservation Reserve Enhancement Program (CREP) starting Monday, November 14, 2005, and running through Friday, November 25, 2005, at county USDA-Farm Service Agency service centers. CREP is a successful partnership involving federal, state and local agencies in which farm landowners can voluntarily enroll their agricultural land and receive funding assistance to help establish conservation practices to reduce sedimentation and nutrient loss in the Illinois River basin, while enhancing wildlife and fish habitat.

“This program gives farmers the chance to help the environment, make money and improve Illinois’ economy,” said Governor Rod R. Blagojevich. “Illinois farmers who voluntarily signup for CREP can put less productive farmland aside, without losing income.”

Gov. Blagojevich’s fiscal year 2006 budget includes \$10 million for the CREP program. As a result of the Governor’s commitment, Illinois is now able to leverage a significant federal match for the program. For every dollar the state invests in CREP, the U.S. Department of Agriculture contributes four dollars, or in this case, \$40 million. This totals a \$50 million benefit for Illinois.

“This is a very exciting event because we have not been able to hold a signup since 2001 for this program,” said Illinois Farm Service Agency Executive Director William Graff. “Farm Service Agency offices look forward to signing up farmers and landowners in the coming weeks.”

“Re-opening CREP helps fulfill the Illinois River Coordinating Council’s management plan for the Illinois River,” said Lt. Governor Pat Quinn, chairman of the Illinois River Coordinating Council. “The program will restore between 15,000-17,000 acres that will improve water quality, wildlife habitat and recreation opportunities, and reduce the amount of sediment entering the Illinois River.”

Gov. Blagojevich announced the CREP expansion during Agriculture Day festivities at the Illinois State Fair in Springfield this past August.

“Our farmers’ active participation in CREP is a reflection of their strong conservation ethic,” Illinois Department of Agriculture Director Chuck Hartke said. “They understand the value of protecting irreplaceable soil and water resources and I expect they will take full advantage of this new enrollment opportunity.”

“We are looking forward to a very successful sign up to help accomplish the goals of the CREP as part of our stewardship of Illinois natural resources,” Illinois Department of Natural Resources Director Joel Brunsvold said. “IDNR has been an active participant in this program by providing technical assistance to landowners as well as general administration of the state side of the program.”

Illinois was the third state in the country to implement the CREP and it has been one of the most successful programs nationwide with enrollment exceeding 110,000 acres.

Implementation of CREP is a partnership of the USDA - Farm Service Agency, USDA - Natural Resources Conservation Service (NRCS), the Illinois Department of Agriculture, Illinois Environmental Protection Agency, Illinois Department of Natural Resources and County Soil and Water Conservation Districts.

CREP is administered in Illinois by the Department of Natural Resources and offers three different levels of participations once enrolled in the Federal side. Landowners can enter into a state conservation easement for an additional 15 years, 35 years or permanently.

QUINN TOUTS CONSERVATION PROGRAM FRIDAY, NOVEMBER 18, 2005

Lt. Gov. Pat Quinn visited Adams County Thursday to remind farmers they only have a week to sign up for a program that protects water quality, limits soil erosion and helps wildlife.

Conservation Reserve Enhancement Program (CREP) enrollment is open through the local soil and water conservation district until Nov. 25. Floodplain property along tributaries of the La Moine River and along McKee Creek are eligible to enroll.

"Illinois is a leader in soil and water conservation with more than 100,000 acres enrolled," Quinn said.

Pam Peter, resource conservationist with the Adams County Soil and Water Conservation District, said about 100 acres of erodible land is enrolled in CREP locally. She hopes to see that double this year.



H-W Photo/Michael Kipley Pam Peter, center, a resource conservationist with the Adams County Soil and Water Conservation District, looks over a map of McKee Creek Thursday afternoon during a press event for the Conservation Enhancement Reserve Program (CREP) at the Louisa Scarbrough farm in eastern Adams County. Looking at the map with Peter are, from left, Illinois Lt. Gov. Pat Quinn, farm operator Gary

Gieker, and farmers Larry Donley from Ursa, Brent Clair from Loraine and Larry Nieders from Payson.

"This is the first time McKee Creek has been eligible" when funds are available to pay for conservation practices, Peter said.

Gary Dieker, who farms a field owned by Louisa Scarborough, has been involved in three conservation projects in recent years. He uses dry dams, terraces, field bank buffers and other practices to end erosion.

Quinn said trees and other vegetation help hold back erosion and purify runoff water that gets in Illinois creeks and rivers.

"One hundred years ago President Teddy Roosevelt said conservation is the patriotic thing to do," Quinn said.

The state budget included \$10 million for the CREP program this year. Federal matching funds came up with another \$40 million. That \$50 million total is enough to make improvements on 15,000 to 1,7000 acres this year.

Quinn said conservation programs, although they benefit from state and federal dollars, are successful largely because there's local control. Members of soil and water conservation district boards know what is needed in specific areas.

"There also are a lot of heroic efforts by farmers who have done conservation practices without government money," Quinn said.

Contact Senior Writer Doug Wilson at dwilson@whig.com or (217) 221-3372

RECOMMENDATIONS AND FUTURE PLANS OF THE CREP ADVISORY COMMITTEE

Setbacks from reductions in CREP appropriations have had a significant impact on not only enrollment, but the loss of momentum that had been achieved with the State's successful achievement of it's original goal, and the USDA approval of expanded acreage to 232,000 acres. This has resulted in the need to re-evaluate the future of the program and the development of new fiscal strategies.

ACTIONS ON PAST FUTURE PLANS

1. Taking into consideration the source of Illinois CREP Funding, establish a long-term staffing and monitoring strategy to assure adequate staff and support for the proper administration of the program. *(Results: Staff has been increased to a level to manage the CREP Program at its current level.)*
2. Hold training and workshops, as needed, for all field staff and SWCD's as a means of updating new and existing staff on issues, and refinement of the enrollment process. Update and keep the training manual up-to-date for field use. *(Results: A training workshop was held in early December 2005 to update SWCD Staff and provide updated training manuals and a web site prior to re-opening of the program.)*
3. Continue to pursue long-term additional staff to assist all SWCDs in the administration of the CREP Program at the County level. Efforts to work with IEPA and other supporters need to continue and expand. *(Results: Meetings with IEPA have resulted in continued financial support to select SWCD's)*

while consideration of long-term funding support.)

FUTURE PLANS

- Additional funding will continue to be sought for dedicated full-time staff to provide technical assistance to landowners in the following agencies: NRCS, DNR, and SWCDs.
- Efforts will be made to provide mid-management habitat assistance to achieve Wildlife Action Plan objectives while complying with CREP objectives.
- Continue Efforts to secure a dedicated funding source for State CREP funds.

MONITORING AND EVALUATION OF THE ILLINOIS RIVER

Illinois River Conservation Reserve Enhance Program (CREP): Monitoring and Evaluation of Sediment and Nutrient Delivery to the Illinois River

Wetland Habitat in the Conservation Reserve Enhancement Program: monitoring and predicting use by migratory water birds.

Forest One, Inc.: A Change Detection Model For CREP Enrollments (funded by the NASA –Illinois Commercialization Center).

Illinois Conservation Practices Tracking System (ICPTS) and CREP Assessment (funded by USDA – FSA)

Illinois River Conservation Reserve Enhance Program (CREP): Monitoring and Evaluation of Sediment and Nutrient Delivery to the Illinois River

by
Center for Watershed Science
Illinois State Water Survey
Illinois Department of Natural Resources

Introduction

The Illinois State Water Survey has been intensively monitoring sediment and nutrient loads at selected stations in the Illinois River basin since 1999 to assist in the evaluation of the Illinois River Conservation Reserve Enhancement Program (CREP). As part of the project, we are also analyzing changes in land-use practices in the watershed, especially the conservation practices implemented since the initiation of CREP in 1998. One of the major goals of the monitoring program is to detect changes in sediment and nutrient loadings that might be attributed to conservation practices in the watershed. Even though changes in sediment loadings respond slowly to land-use changes, analyses are being conducted to investigate the relation between the two based on data collected from the intensively monitored watersheds. To compliment the data from the intensively monitored watersheds, we are using data collected by the Illinois Environmental Agency (IEPA) to estimate nutrient loadings from tributary streams to the Lower Illinois River. Data collected from the Spoon, Sangamon, and LaMoine from 1975 to 2003 are used to estimate loadings from tributary streams and compared to the total nutrient load in the Illinois River as monitored at Havana and Valley City. We are also developing watershed models to assist us in basin-wide evaluation of CREP. A watershed model based on the U.S. Environmental Agency's BASINS 3.0 modeling system is being developed for the Spoon River watershed where two of the intensively monitored watersheds are located. The model will be calibrated using data collected at the three stations in the watershed. Once the model is fully developed, the model parameters used for the Spoon River watershed can be adapted for other watersheds in the basin to simulate the hydrology, sediment transport and water quality under different climate and land use scenarios.

The Illinois State Water Survey is preparing a comprehensive report that will include details on data collection and analyses for the monitoring program, land-use analyses including conservation practices implemented by CREP, nutrient loadings to the Lower Illinois River, and development and application of watershed model for the Spoon River watershed. A brief summary for each component is presented in this progress report.

Monitoring and Data Collection

Five small watersheds located within the Spoon and Sangamon River watersheds were selected for intensive monitoring of sediment and nutrients within the Illinois River basin. The locations of the watersheds and the monitoring stations are shown in figures 1 and 2 and information about the monitoring stations is provided in table 1. Court , North and Haw Creeks are located within the Spoon River watershed, while Panther and Cox Creeks are located within the Sangamon River watershed. The Spoon River watershed generates the highest sediment per unit area in the Illinois River basin, while the Sangamon River watershed is the largest tributary watershed to the Illinois River and delivers the largest total amount of sediment to the Illinois River. The type of data collected and the data collection methods have been presented in detail in the first progress report for the monitoring program. All the data collected from the five stations is analyzed and will be presented in detail in the report.

Table 1. Sediment and Nutrient Monitoring Stations Established for the Illinois River CREP

<i>Station ID</i>	<i>Name</i>	<i>Drainage area</i>	<i>Watershed</i>
301	Court Creek	66.4 sq mi (172 sq km)	Spoon River
302	North Creek	26.0 sq mi (67.4 sq km)	Spoon River
303	Haw Creek	55.2 sq mi (143 sq km)	Spoon River
201	Panther Creek	16.5 sq mi (42.7 sq km)	Sangamon River
202	Cox Creek	12.0 sq mi (31.1 sq km)	Sangamon River

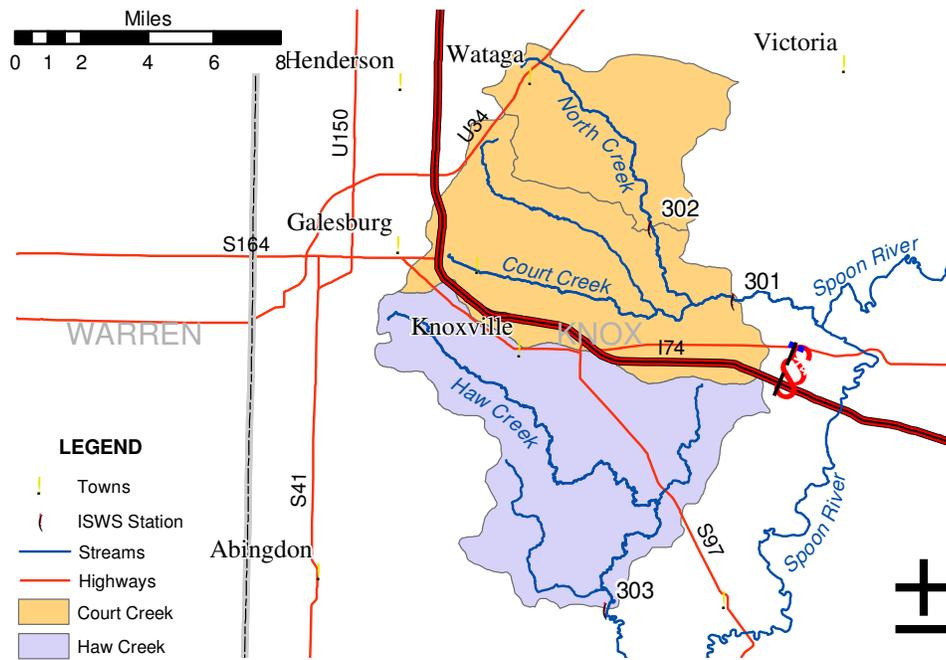


Figure 1. Locations of monitoring stations in the Court and Haw Creek watersheds

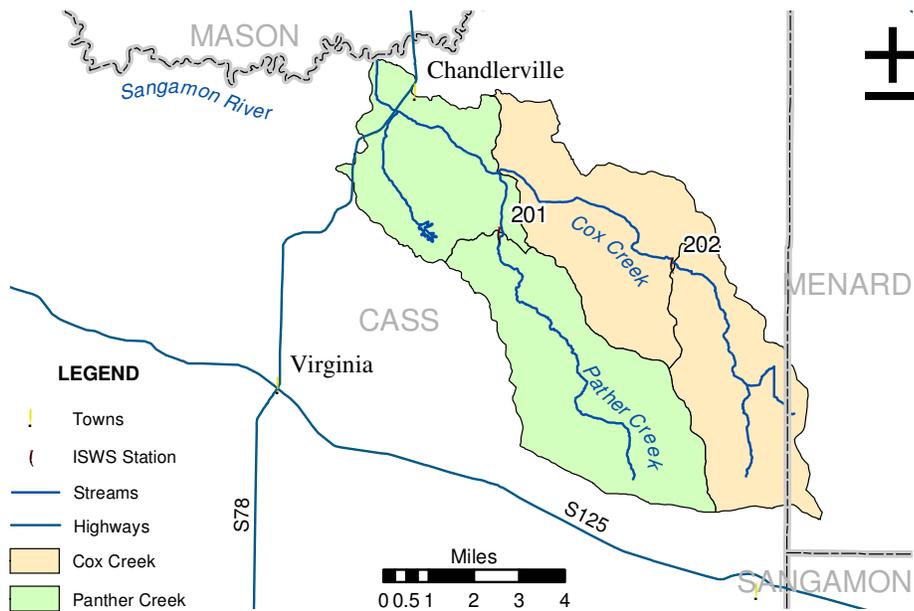


Figure 2. Locations of monitoring stations in the Panther and Cox Creek watersheds

For example, the data collected at one of the stations in Water Year 2000 is shown in figure 3, where the sediment and nutrient concentrations are plotted along with the streamflow. This data is then used to compute the sediment and nutrient loads at each of the stations for the monitoring period. The suspended sediment loads calculated for such a data set are shown in figure 4. Similar calculations are performed for each of the nutrient species monitored at all the stations. Then the loading results will be used to assess changes from year to year and differences between watersheds.

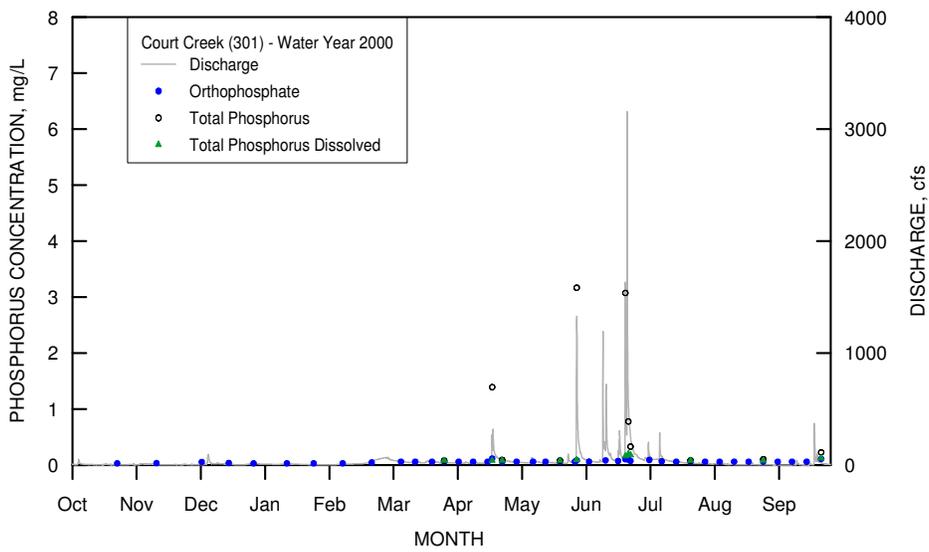
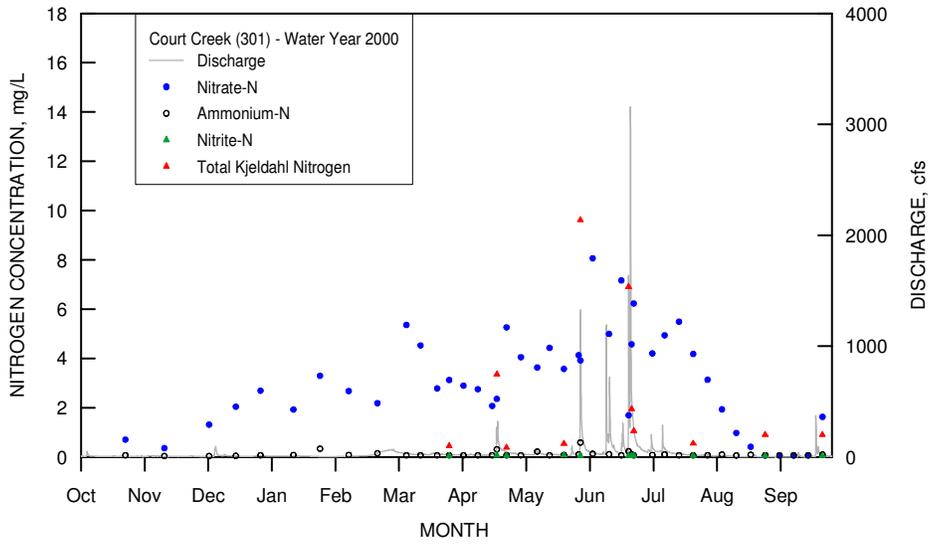
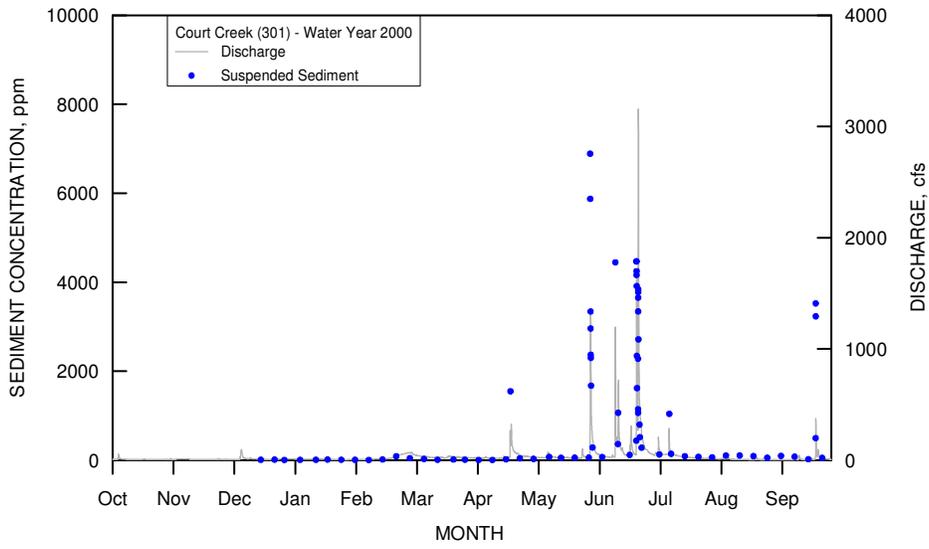


Figure 3. Concentrations of sediment, nitrogen, and phosphorous monitored at Court Creek in Water Year 2000

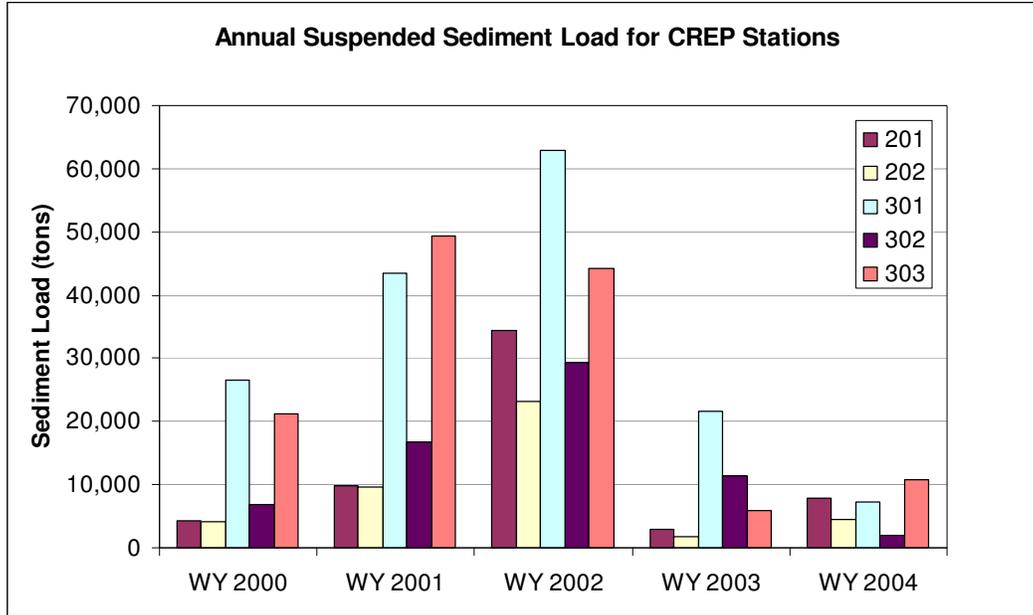


Figure 4. Annual Suspended Load at the five CREP monitoring stations

Annual Nutrient Loads for the Lower Illinois River

To compliment the data collected by the Water Survey at the intensively monitored small watersheds, data from larger watersheds and from the Illinois River were to estimate loads. Nutrient data collected by IEPA and streamflow data from the USGS were used to estimate annual nutrient loads for the Lower Illinois River and its major tributaries. Annual loads of nitrate-N and total phosphorous were estimated at five stations for the period 1975-2003. The analysis provides information on the amount and variability of annual nutrient loads to the Lower Illinois River from the major tributaries. For example, figures 5 and 6 show the variability of the annual nitrate-N and total phosphorous loads per square mile of watershed area for the Spoon, Sangamon, LaMoine and for the two stations on the Illinois River at Havana and Valley City. The report will include detail discussions of the data, the procedures used to estimate the loads and the variability and trends in the data.

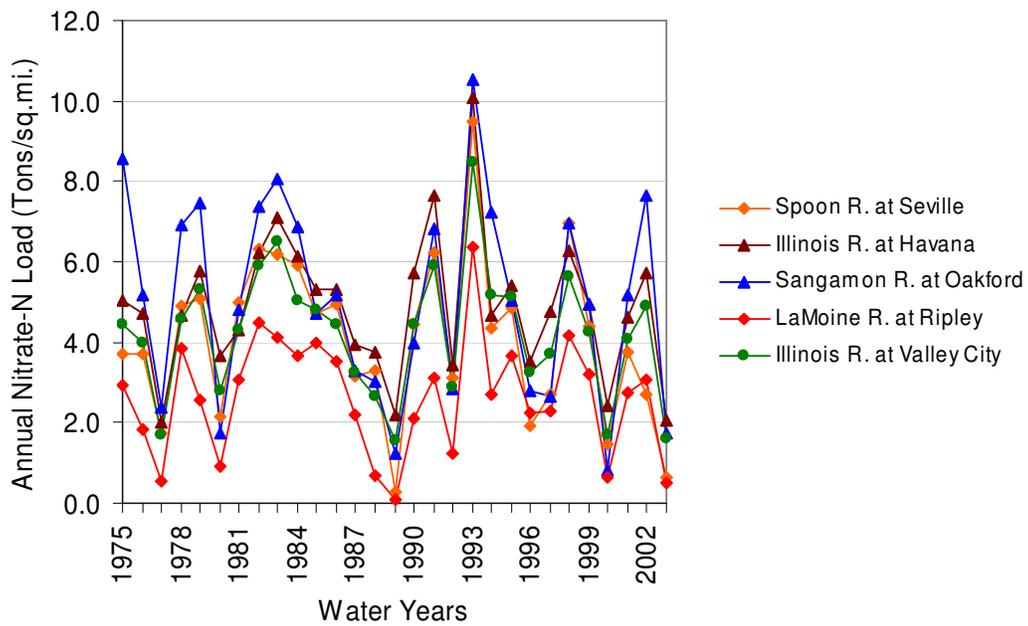


Figure 5. Annual nitrate-N load for IEPA monitoring stations in the Lower Illinois River Basin

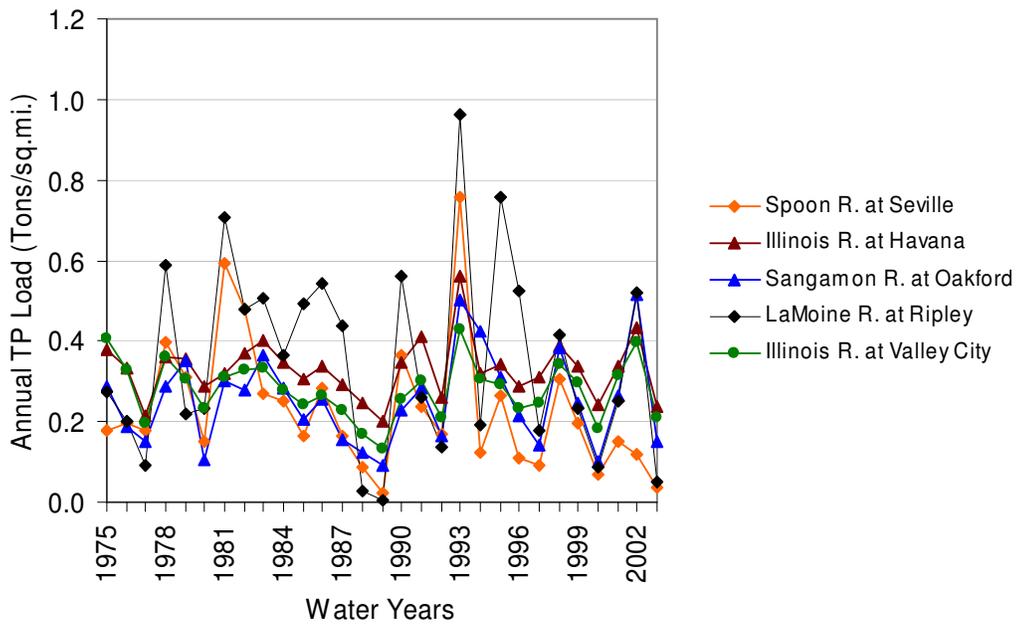


Figure 6. Annual TP load for IEPA monitoring stations in the Lower Illinois River Basin

Model Development and Application

The Illinois State Water Survey has been developing a watershed model for the Illinois River basin in support of the Illinois River Ecosystem project. In the initial phase, a hydrologic model of the entire Illinois River basin has been developed and used to evaluate potential impacts of land use changes and climate variability on streamflow in the Illinois River basin. The model is based on the U.S. Environmental Protection Agency's BASINS 3.0 modeling system. The Hydrologic Simulation Program – FORTRAN or HSPF (Bicknell et al., 2001) which is part of BASINS was used to simulate the hydrology of the Illinois River basin. HSPF is a comprehensive and dynamic watershed model that also has the capability to simulate water quality and sediment transport.

To make the model applicable for assessing and evaluating the impact of CREP and other land use changes on water quality and sediment transport, the Water Survey has been developing the sediment transport and water quality capabilities of the HSPF model for the Illinois River basin. The initial effort has focused on the Spoon River watershed (figure 7) where two of the four intensively monitored watersheds, Court and Haw Creek, are located. Streamflow, sediment, and water quality data being collected at three monitoring stations are being used to calibrate and test the model for the Spoon River watershed. Once the calibration and validation process are completed for the Spoon River watershed, the model parameters can be used to develop models for other similar watersheds to simulate the hydrology, sediment transport and water quality under different climatic and land use scenarios. Over time, as land use practices change significantly as a result of CREP and other conservation practices, the models being developed will provide the tools to evaluate and quantify changes in water quality and sediment delivery to the Illinois River.

The report will include a detailed discussion of the development of the models and their applications to Spoon River watershed highlighted in figure 7.



Figure 7. Location of the Spoon River watershed

Land Use Practices

The Water Survey is analyzing changes in land use including conservation practices in the Illinois River Basin since the initiation of CREP in 1998. The conservation practices data is compiled by the IDNR and USDA-FSA. The CREP conservation practices installed in the entire Illinois River Basin, as well as a more detailed conservation practice database for the four intensively monitored watersheds, is being analyzed to investigate relationships between sediment loadings and changes in conservation practices. There are 16 different conservation practices (see table 2) being used in the IRB CREP program. Five of the 16 practices account for 94 percent of the total CREP acres. Below are some preliminary statistics of the conservation practices through 2005. Detailed analyses of the changes in land uses practices for the Illinois River basin and intensively monitored watershed will be presented in the report.

- The majority of the CREP acres approximately (90 percent) are located in the Illinois River Valley and the La Moine, Sangamon, Spoon, and Iroquois River subwatersheds.
- Wetland restoration (CP23) is the most used conservation practices covering nearly 38 percent of the total CREP acres in the IRB. This is followed by riparian buffer (CP22), permanent wildlife habitat, non-easement (CP4D), filter strips (CP21), and hardwood trees (CP3A) at 25, 15, 11, and 5 percent, respectively.

Table 2. Description of conservation practices used in the Illinois River Basin CREP

<i>Practice Code</i>	<i>Practice Description</i>
CP1	Establishment of permanent introduced grasses and legumes
CP2	Establishment of permanent native grasses
CP3	Tree planting
CP3A	Hardwood tree planting
CP4B	Permanent wildlife habitat (corridors), noneasement
CP4D	Permanent wildlife habitat, noneasement
CP5A	Field windbreak establishment, noneasement
CP8A	Grass waterways, noneasement
CP9	Shallow water areas for wildlife
CP11	Vegetative cover - trees - already established
CP12	Wildlife food plot
CP16A	Shelterbelt establishment, noneasement
CP21	Filter strip
CP22	Riparian buffer
CP23	Wetland restoration
CP25	Rare and declining habitat

Intensively Monitored Watersheds

Court/Haw Creeks (Knox County)

- The Court and Haw Creek watersheds have a total of 1896 acres of conservation practices installed under CREP and CRP. These acres are located in the watershed area being monitored by the ISWS at three separate locations (figure 1). Court Creek (301) has 767 acres, North Creek (302) has 323 acres, and Haw Creek (303) has 806 acres.
- Almost 70 percent of the conservation practice acres in the Court (301) and North (302) watersheds are riparian buffer, wetland restoration, and filter strips. Permanent wildlife habitat, riparian buffer, and filter strips account for 61 percent of the conservation practices in the Haw (303) watershed.
- Most of the conservation practice acres in the three watersheds were installed between 1999 and 2002 (figure 8).

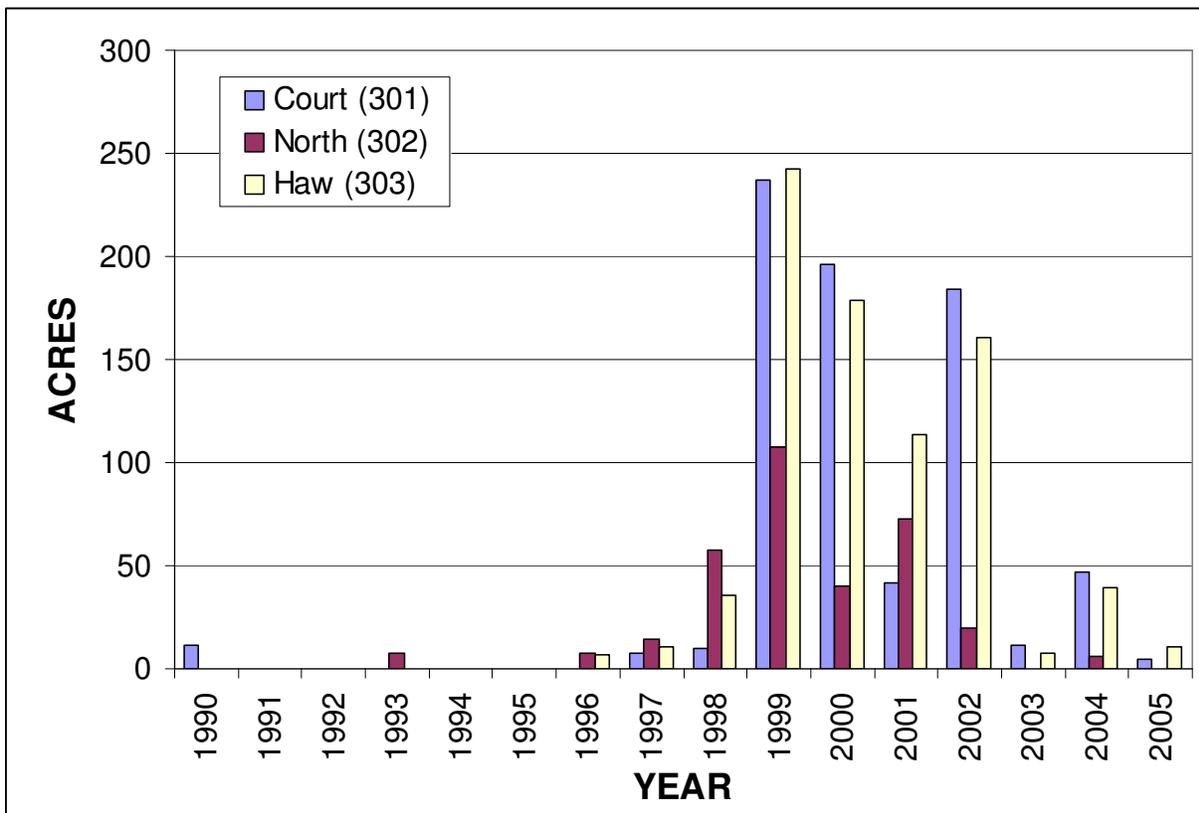


Figure 8. Acres of conservation practices installed in Court and Haw Creek watersheds over time.

Panther/Cox Creeks (Cass County)

- The Panther and Cox Creek watersheds have 887 acres of conservation practices.
- Approximately 147 acres (16 percent) have been installed above the two ISWS streamgages.
 - Panther (201): 129 acres
 - Cox (202): 18 acres
- Nearly all the conservation practices installed in the watershed upstream of Panther (201) has been riparian buffers (126 acres) funded by CREP.
- The 18 acres of conservation practices installed above Cox (202) were cool/warm season grass/shrubs and grass waterways funded by CREP, CRP, and WHIP (Wildlife Habitat Incentives Program).



Wetland habitat in the Conservation Reserve Enhancement Program

monitoring and predicting use by migratory water birds.



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INTRODUCTION

The Conservation Reserve Enhancement Program (CREP) is one of today's most promising avenues for watershed restoration. Nearly 600,000 acres of habitat are now enrolled in 27 states nationwide. Wetland restoration makes up a large and growing portion of that acreage. Illinois alone has enrolled some 30,000 acres in wetland conservation practices (Figure 1). Little is known, however, about the types of wetland habitat established and their use by wildlife. The large quantity and scattered distribution of CREP wetlands make direct monitoring of bird use a difficult task. Indirect metrics and indices could be useful for large-scale assessments of the program's ongoing contribution to avian populations.

OBJECTIVES

1. Describe physical, spatial, and floristic characteristics of a random sample of CREP wetlands
2. Determine the amount of use of CREP wetlands by migrating water birds
3. Model this use relative to wetland characteristics.

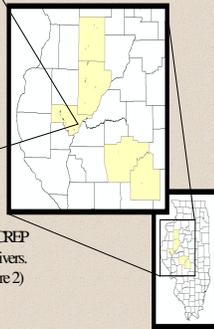


Figure 2 Study Area

METHODS

Study Areas

Our study sites consisted of 33 randomly selected, independent, and entire CP23 CREP wetlands within the watersheds of the Illinois, LaMoine, Spoon, and Sangamon Rivers. All of these wetlands were palustrine habitats ranging in age from 3-6 years (Figure 2)

Data Collection

- ? Floristic inventories were conducted on each site during the summer of 2003 (Brown and Phillips 2004).
- ? We calculated a mean coefficient of conservatism (Mean C) as an estimate of each site's level of habitat quality (Taft et al. 1997).
- ? We monitored sites weekly throughout the spring and summer of 2004 and 2005 to determine the presence of hydrologic engineering and to monitor fluctuations in hydrology.
- ? We delineated wetland boundaries based on extent of inundation and presence of hydrophytic vegetation using color-infrared digital orthoimagery (USDA 2004).
- ? We measured spatial characteristics of wetland isolation and watershed context using NWI data in ArcGIS 9.0 (USFWS 1996; ESRI 2004).
- ? We estimated wetland isolation according to the amount of aquatic habitat within a 3 km buffer (Fairbairn and Dinsmore 2001).
- ? We estimated watershed context as the distance from the wetland to the main stem of the Illinois River.
- ? We conducted weekly visual point counts throughout the spring of 2004 and 2005 to determine the amount of use by migratory water birds.
- ? We also determined species diversity and waterfowl breeding pair and brood diversity, but only analyses of use days are presented here.

Statistical Analyses

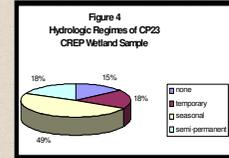
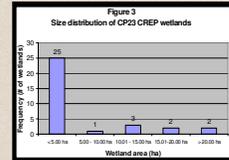
We estimated water bird use days as the weighted sum of the moving average of the number of water birds counted during each census for every site. Potential predictors of the density of water bird use days were analyzed by building a set of a priori candidate models. Model covariates consisted of various spatial, physical, and floristic habitat characteristics including hydrologic engineering, distance to main stem, isolation, size, mean C scores, and vegetation structure. Best approximating and competing models were identified using Akaike's Information Criterion (AIC; Burnham and Anderson 1998) in PROC GLIMMIX (SAS Institute 2004).



RESULTS

Wetland Characterization and Model Parameters

- ? Parcels ranged in size from 1.9 to 149.0 hectares; wetlands within parcels ranged from 0.01 to 122.80 ha (Figure 3).
- ? USDA allows for a 6:1 upland to wetland area ratio; the mean ratio for this sample was 83:1.
- ? 28 of our 33 sites had functional hydrological regimes (Cowardin 1979; Federal 1989) (Figure 4).
- ? 15 of the 28 (54%) had some form of hydrologic engineering (water control structures, berms, etc.).
- ? 18 of the 28 (64%) had structural cover present for migrants (some form of robust emergent vegetation).
- ? Mean C scores ranged from 3.45 to 4.79, with a mean of 4.06.
- ? Isolation ranged from 27 to 1719 ha, with a mean of 328 ha of aquatic habitat within a 3 km buffer.
- ? Distance of the wetland to the main stem ranged from 1 to 106 km with a mean distance of 32 km.



Water bird use

- Weekly migratory abundance of all water birds ranged from 0 to 2,450 per wetland
- Total use day density ranged from 0 to 2855 UD/ha
- The mean use day density for both years was 632 UD/ha

Use day modeling

Table 1. Candidate models to explain variation in use day density (UD/ha), ranked by second order Akaike's information criterion (AIC_c).

Model	df	AIC _c	ΔAIC _c	w _i
HYDROENG	2	131.2	0.0	0.495
VEGSTRUCT	2	132.1	0.9	0.321
MEANC	2	133.7	2.5	0.141
DIST	2	136.9	5.7	0.029
SIZE	2	138.9	7.7	0.011
ISOL	2	141.1	9.9	0.004
HYDROENG+DIST+ISOL	2	149.0	17.8	0.000
HYDROENG+DIST+ISOL+MEANC	2	151.6	20.4	0.000

Of 8 candidate models, two were considered competing ($\Delta AIC_c < 2.0$; Burnham and Anderson 1998), accounting for 82% of the w_i (Table 1). The best model contained the main effect of HYDROENG, while the second best model contained the main effect of VEGSTRUCT (Table 1). Based on the best approximating model, wetlands with hydrologic engineering, on average, had 404% more migratory use days than those without (95% CI: 37 - 1755%). Based on the second best approximating model, wetlands with emergent vegetation, on average, had 964% more migratory use days than those without (95% CI: 40 - 7979%).



DISCUSSION

Based on our best model, active wetland restoration using some form of hydrologic engineering was the factor most associated with the amount of migratory use. Passive restorations may provide stopover habitat during the spring, but active water management provided a significantly greater chance of sustaining the hydroic habitat conditions needed by the diverse suite of water birds moving through the Illinois River Valley. The presence of robust emergent vegetation also had a positive influence on use during migration. Robust emergents remain through the winter and can provide a source of cover during the early months of the spring migration. While both of these covariates had strong relationships to use day density, their large confidence intervals indicate a variable relationship. Surprisingly, wetland isolation, distance to the main stem, and wetland size did not have an appreciable relationship to water bird use days. Thus, actively managing hydrology and vegetation structure appear more important determinants of use by migrating water birds than do size or landscape context of restored wetlands. While wetland habitats are indeed complex systems, their value as wildlife habitat within CREP can be substantially improved by ensuring simple characteristics such as hydrologic engineering and vegetative structure.

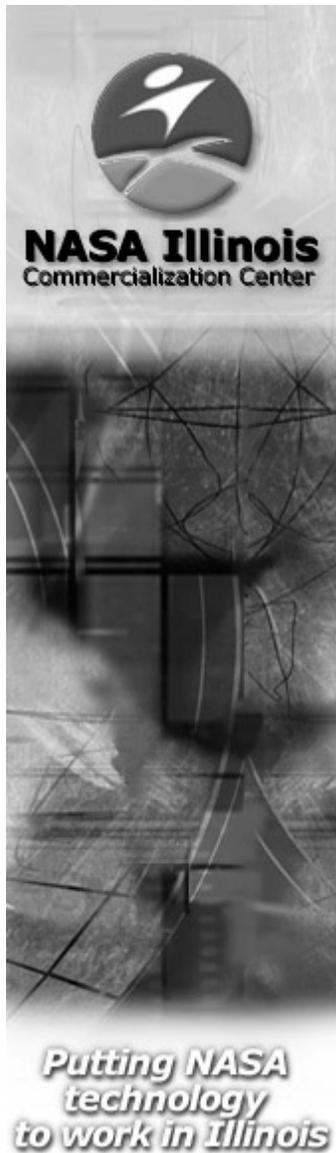
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Final Report for Contract #179319

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Table of Content

1. Executive Summary	31
2. Deliverable Details.....	31
3. Conclusions and Recommendation for Next Steps.....	32

1. Executive Summary

The objective of the project was to investigate the effectiveness of satellite imagery to monitor land tracts under the Illinois Conservation Reserve Enhancement Program (CREP).

The project team successfully analyzed Landsat satellite imagery to implement monitoring of CRP and CREP land tract in Schuyler County, Illinois. Changes in the land tracts were detected by satellite imagery and ground survey was conducted to verify the accuracy of the analysis. The ground surveys were conducted in collaboration with Illinois Department of Natural Resources (IDNR), Schuler County United States Department of Agriculture and Natural Resource Conservation Service (NRCS). Results were presented to Section Chief, Illinois Farm Service Agency along with IDNR team. A technical presentation of the project was submitted for review at the Illinois Geographic Information Systems Association (ILGISA) on April 14th 2004. The presentation is attached in Appendix A. A web-site which allows interactive mapping was created to present the satellite data along with the land boundaries which were analyzed. The website is under password protection in <http://www.ForestOne.com>.¹

2. Deliverable Details

Task	Personnel	Deliverables	Status
Identify location and aspects to be monitored. Establish dates of monitoring pilot project	Dr Joon Heo, Shailu Verma, Illinois DNR Technical Staff	Document which highlights the following: A) Matrix of locations and aspects which need monitored. The locations should be identifiable digitally on a map. B) Dates of the time frame of monitoring C) Dates of potential satellite image acquisition.	Complete. Details were provided in document titled: "Mid-Project Document.doc", submitted to NICC in Nov 2003.
Identifying the procedures to be studied with different satellite imagery options	Dr Joon Heo, Shailu Verma	List of all the satellite images which can provide value to the task at hand along with cost and resolution details	Complete. Details were provided in document titled: "Mid-Project Document.doc", submitted to NICC in Nov 2003.
Conduct analysis with satellite imagery	Dr Joon Heo, Abdel Ouhabi	Digital output of the following: A) Satellite images rectified and aligned to specifications. B) Analysis results which indicate precise location and nature of change.	Complete. Details were provided in document titled: "Mid-Project Document.doc", submitted to NICC in Nov 2003.
Verify the accuracy of the data	Dr Joon Heo, Shailu Verma, Illinois DNR Technical Staff	Digital photographs and reports from ground visit to the field. Results of this step will affirm or reject the accuracy of the analysis. This step might require going back to the earlier step to calibrate and enhance the accuracy of the data product	Complete. Ground Survey was conducted by Shailu Verma (Forest One), Steve Sobaski and Steven Niemann (Illinois DNR), Larry Shelts (FSA) on 1/13/2004
Analyze and present the best options for the data	Dr Joon Heo, Shailu Verma	Document a summary of all the options analyzed conclusion of the most economical option in moving forward.	Complete. Details were provided in document titled: "Mid-Project Document.doc", submitted to NICC in Nov 2003.
Create a web-based tool for delivery of satellite data and information from the analysis.	Dr Joon Heo, Shailu Verma, Abdel Ouhabi, Clark Love	An interactive web-site which would provide maps, satellite images, location identifiers such as roads, streams, lakes etc. This website would provide a mechanism for delivering all the change location and size of change in the CREP land areas. The web-site	Completed. The site is located under username and password under www.ForestOne.com. For NICC users, the username is "NICC" and password is "forestone". Click on F1.Cruise, enter a title, Illinois state and Schuyler County and zoom into the map to see the CRP land areas and satellite analysis.
Commercialization process	Shailu Verma	A color brochure which highlights the value of monitoring change in land resources by using satellite images. Also a white paper which documents the details of the results in the pilot project. This paper would be published and presented in leading confer	Instead of a color brochure, it was decided to share the information about the project with relevant leaders for the government conservation community through meetings and presentations. A copy of the presentation is attached in Appendix A. Shailu Verma had a meeting with Michael Linsenbigler, Deputy Director, Conservation and Environmental Programs Division (CEPD), Farm Service Agency, Washington, D.C., on March 8th, 2004. The meeting was attended by Michael and his staff of about 8 individuals and they expressed a keen interest in seeking funding to pursue the next steps from the study.

3. Conclusions and Recommendation for Next Steps

The project achieved its objective of exhibiting a “proof-of-concept” in using satellite images and web-technology in monitoring conservation land assets. Feedback from ILDNR and Section Leaders at USDA, FSA and NRCS indicates that the technology has promise in increasing the efficiency with which land is monitored today. The USDA has a challenge to manage an increasing growing conservation program with the same or even reduced staff and thus the project deliverables meet a relevant objective for various federal agencies.

The future tasks are the following:

- a) Using deliverables from the existing project, Forest One plans to market satellite imagery as an effective option to increase efficiency in monitoring conservation land to the program managers and leadership at USDA, NRCS, FSA and DNRs. This would be achieved through meetings and presentation at targeted conferences.
- b) The analysis from the satellite data has known limitation such as, increase or decrease in wetness in an area registers as changes (false positives) or in some cases minor changes in vegetation, such as selective removal of trees, does not register as a change. There are also limitations on the size of changes detected by satellite data. Further testing over a larger number of land tracts would be necessary to document on interpreting satellite analysis.
- c) Implement satellite imagery monitoring in an actual conservation program and document the savings associated with it.

Appendix A

Attached as a powerpoint hardcopy presentation.